Logicube OmniSCSI User's Manual

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Logicube Technical Support Contact Information

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2. By email: techsupport@logicube.com
3. By telephone: 1 - (818) 700 8488 ext. 3 between the hours of 7am –5pm PST, Monday through Friday, excluding U.S. legal holidays.

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1. Introduction to the Logicube OmniSCSI

Introduction

Thank you for purchasing the Logicube OmniSCSI Hard Drive Duplication device. With proper use, this system will accurately clone Hard Disk Drives for years to come

The Logicube OmniSCSI duplicates or clones the contents of one hard drive onto another; a source drive, typically referred to as the Master[1] and a destination drive known as the Target.

Features

- Clones most SCSI drives[2]
- Data transfer rates approaching 6.0 GB/min
- Master and Target drives can be of different size, make and model
- Automatically scales FAT16/32, NTFS 4.0/5.0/6.0, and Windows 2000/NT/ME/XP partitions
- Optional diagnostics software for Department of Defense (DoD) specification data wiping

Using this guide

This user guide is made up of 7 sections:

- Introduction
- Getting Started (Fast Start)
- Cloning Modes and Settings
- Omnidiagnostics
- Software Loading Instructions
- Frequently Asked Questions
- Index

Please read Modules 1. *Introduction*, and Module 2. *Getting Started* before attempting a drive cloning session. It is recommended that you practice with a scratch drive to fully appreciate all of the features.

[1] The term Master as used does not refer to the master jumper setting on the hard drive.

[2] As of this writing, SCSI "Fibre Channel" drives as well as 2.5" SCSI-2 laptop drives are not supported.

System description

The complete Logicube OmniSCSI system includes the following:

- The Logicube OmniSCSI unit
- Two (2) 68-pin flat ribbon cables and two (2) drive power cables are provided
- A System CompactFlash card for software updates
- An AC power cord
- A CD containing the user's manual

NOTE: Please contact Logicube Technical Support at (818) 700-8488 X3 if any of the above pieces are missing.

Caution: Avoid dropping the Logicube OmniSCSI or subjecting it to sharp jolts. When in use, place it on a flat surface.

Caution: Keep the unit dry. If you need to clean your Logicube OmniSCSI, use a lightly damp, lint free cloth. Do not run the cloth over the top cooling grid as moisture could get inside the unit. Avoid using soap or other cleaning agents particularly those containing bleach, ammonia, alcohol or other harsh chemicals.

Caution: Do not attempt to service the Logicube OmniSCSI. Doing so may void the warranty. If your unit requires service, please contact Logicube Technical Support for assistance.

2. Getting Started (Fast Start)

Applying power to the Logicube OmniSCSI

The Logicube OmniSCSI is able to detect the capacity, C/H/S information and the partition table of any SCSI drive that is attached to the Master or Target positions.

NOTE: Never "daisy chain" more than one SCSI drive to each Master or Target position. The unit can only handle one drive on each position.

Before applying power, perform the following steps listed below.

Connecting Drives to the OmniSCSI

1. To attach a SCSI Master drive, plug the 68-pin ribbon cable into the SCSI data socket such that the red line is near the power connector, (4-hole receptacle). Plug a drive power cable into the corresponding power receptacle.
2. Attach the opposite ends of the cables to the Master SCSI drive[3].

   NOTE: The drive will not actually be powered until a copy operation or drive information is started.
3. Connect the remaining cables to their respective connectors for the Target drive position following the same information as steps 1 and 2.

Things to remember:

The OmniSCSI supplies power to all drives during a cloning or drive information session. There is no need to connect an external power source to the drives.

It is OK to connect and disconnect Master or Target drives while the OmniSCSI is powered and idle. However, do NOT connect or disconnect drives during a cloning or drive information session. The Status light will typically blink to indicate that the unit is cloning or performing a drive information session.

[3] SCSI drives can be set for any ID, except 7, which is reserved for the SCSI Host Adapter. For best results, set each Target drive to SCSI ID 0, this will allow drive identification to proceed more quickly.

Adapters for other types of SCSI drives

Logicube sells specialized adapters that allow the following types of SCSI drives to be connected to the Logicube OmniSCSI:

- 80-pin Adapters for connecting drives with SCA-80 connectors.
- 50-pin Adapters for connecting drives with old-style SCSI-1 connectors.

Power switch and Power button

The Logicube OmniSCSI includes an On/Off switch and an On/Off button. One power switch is a rocker switch that is located on the unit's power supply. The power button is located on the back of the unit.

When the unit needs to be re-booted, tap the power button. This will shut the unit off. Wait a few seconds for the drives to stop spinning, then tap the power button again. The unit will reboot and be ready to use.

NOTE: Please check the switch on the power supply to make sure that it is on. The power button will not function if the power supply switch is off.

The user interface

The user interface (UI) has been designed with the professional in mind. It is fast, responsive, and to the point; which means it requires very few key strokes to achieve a desired action. It also displays fewer "are you sure" messages that may slow down the cloning session.

Figure 1. Buttons and Interface

"Shortcut" buttons (available at all times)

- **START/STOP** Button – Press it twice to begin a cloning operation using the current settings; press the START/STOP button in mid process to abort it. A single key stroke presents a preview screen where you can see the current setting, and decide whether to press it again to begin the capture, or back out to reconfigure.
- The "**Help**" **("?")** button provides context sensitive help and is active at all times. Press it to get specific help on the current screen. If the selection cursor is on the screen, pressing the Help button will retrieve specific help for that item pointed to. The Help button also brings up a slider to adjust the screen contrast.
- The "**Set**" button is the third "shortcut" button. It brings you to the settings screen where you can change capture modes and other settings of the unit.

"Soft" Buttons

The "soft" buttons are used anywhere selection or toggling are necessary.

The "**Select**" button is used to select an option (e.g. a partition to copy), to toggle between multiple available options or to enter a sub-menu.

The "**Back**" button is used to go "up" in the menu system or to cancel out of a given operation.

"Navigation" (Arrow) Buttons

The four Arrow buttons are used for navigation.

- The "**Up**" and "**Down**" buttons are most often used when there is a scrollable window of text and the right side of the screen displays the scroll arrows. This occurs when the amount of information to display exceeds the screen size. There are also screens in the Settings menu where navigating from one option to another requires moving up or down.
- The "**Left**" and "**Right**" buttons are used to navigate from one option to another in the Settings menu. The currently active option will be enclosed by a dashed rectangle.

Indicator Lights

The **POWER** indicator light remains on while the Logicube OmniSCSI is receiving power.

The **STATUS** indicator is lit during cloning operations and any operation that accesses the Master or Target drive. It will flash green as data is transferred from one drive to the other.

An **ERROR** light will come on if a problem is encountered during cloning or any other operation. The Status Light will stop flashing and turn red. If this occurs, check the screen for an error message and instructions on what to do next.

3. Cloning Modes and Settings

Main Menu Screen

The main menu screen appears when the Logicube OmniSCSI is first powered up after it goes through the Self Test. It displays the Splash Screen and two menu options: **About** and **Drives**.

About Screen

Select the About Screen by highlighting "**About**" and pressing the Select button. It will display the serial number of your unit along with the software and firmware versions that are loaded. In addition, the About screen lists all options currently enabled on the unit and provides contact information for Logicube Technical Support.

To return to the main menu, simply press the Back button at any time.

Drive Information

Select the Drive Information screen by highlighting "**Drives**" and pressing the Select button. The drives will power-up and the Logicube OmniSCSI will attempt to read the drive information. After 30 to 45 seconds, the unit will show a list of all the drives it has detected. Use the arrow keys to navigate the list. When a drive is highlighted (and the Select button pressed), the unit will access the drive and report back the drive's model number, capacity, geometry and other information.

To see the drive's partition information, highlight "**See More**" and press the Select button to display all of the partitions located on that drive.

To return to the main menu, you may press the Back button at any time.

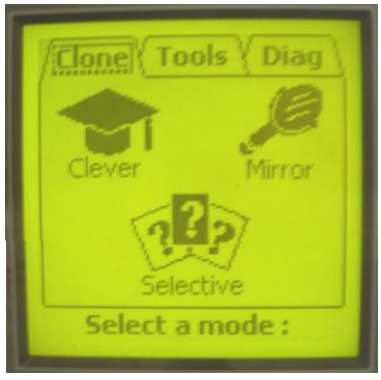
Screen Contrast

To adjust the contrast of the display, simply press the Help button at any time. Underneath the Help information is a slider bar to adjust the screen contrast. Use the Left and Right arrows to adjust the bar. Once the desired contrast is set, press the Select button to return to the previous screen.

Cloning

Using the OmniSCSI

The OmniSCSI can be in one of several modes of operation[4]. To set a mode hit the "**Set**" button, navigate to the top icon and hit the "**Select**" button. You will now see the following screen[5]:



You will notice the three tabs along the top of this screen labeled "**Clone**", "**Tools**", and "**Diag**". You can navigate between the three tabs when the dashed rectangle is around the label of each tab.

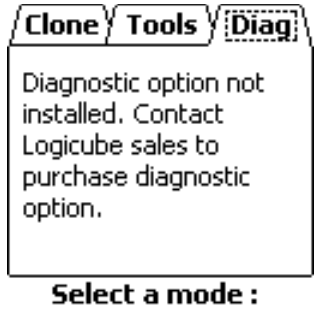
For example, pressing the right arrow button when the dashed rectangle is around the "**Clone**" label will cause the "**Tools**" tab to become active and display the available tools.

Pressing the right arrow again when the dashed rectangle is around the "**Tools**" label will cause the "**Diag**" tab to become active and display the installed diagnostics[6].

[4] Some of the modes are optional and require the purchase of a separate license. Call Logicube Sales for more details at (818) 700 8488.

[5] Depending on the options you purchased and installed your screens may not match the examples exactly.

[6] If you did not purchase the Diagnostic option this screen will not contain any selectable items.



Clever Clone Mode

Clever Clone automatically scales all FAT32 and NTFS partitions to fill the Target drive in its entirety, and makes all the necessary adjustments to ensure a valid and bootable Target drive. It can also scale FAT16 partitions up to 2GB.

NOTE: When Clever Clone scales down an NTFS partition, it can only scale it to 55% of the original size and depending on the data on the Master drive, may not be able to fit in a smaller drive.

Clever Clone Step-by-Step

1. From anywhere in the menu system press the "**Set**" button to enter the Settings menu.
2. Scroll to the top icon and press the "**Select**" button. The Modes screen appears.
3. Scroll to the "Clever" item (the light bulb icon), and press "**Select**" again[7].
4. Adjust the "Verify" and "CHS" settings as needed. (These settings are discussed later in this chapter).
5. When you are ready to start the cloning process, press the **"START/STOP"** button twice.

Selective Partitions Mode

Selective Partitions is the most elaborate and flexible cloning mode. It provides the highest level of control over the cloning process, allowing you to individually select one or multiple partitions from the Master drive. It also allows you to choose a unique copy method for each.

NOTE: Not all copy methods are available for all partition types.

[7]You may need to switch from another tab screen to the **Clone** tab to access this option.

Copy Methods

Clever Clone – The default mode that lets the OmniSCSI determine the best (usually fastest) way to clone. It is denoted by the light bulb icon. It works with all FAT16/FAT32 and NTFS type partitions.

Mirror – This setting clones the full contents of the selected partition without any partition scaling. (This setting is similar to 100% Clone mode, which mirrors the entire Master drive.)

NOTE: Partition Mirror is available for any partition type, and is the only method available to partitions that are unrecognized by Clever Clone mode.

None (blank) – This setting instructs the Logicube OmniSCSI not to clone the selected partition.

Selective Partitions Step-by-Step

1. From anywhere in the menu system press the "**Set**" button to enter the Settings menu.
2. Scroll to the top icon and press the "**Select**" button. The Modes screen appears.
3. Scroll to the "Selective" item (the painter's palette), and press "**Select**" again[8]. The MASTER drive will now power up. Some seconds later you will see a list of all partitions found on the MASTER.
4. On the right hand side you will see a designator for the partition type:
    - **FAT16** - FAT16 partition
    - **FAT32** - FAT32 partition
    - **NTFS** - NTFS partition
    - **CQ** - COMPAQ diagnostics partition
    - **??** - unknown partition
5. Use the scroll buttons to place the cursor by a given partition and press the "**Select**" button multiple times to cycle among the 5 options.
(*Clever -> Mirror*, etc.)

[8]You may need to switch from another tab screen to the **Clone** tab to access this option.

The following is an example of what may appear on the screen when using Selective Partitions Mode.

In the example above, there are three partitions that have been selected for cloning.

6. Scroll to other partitions and repeat the above step. Note that it is OK to assign unique cloning modes to each selected partition.
7. Adjust the “Verify” and “CHS” settings as needed. (These settings are discussed later in this chapter).
8. When done, press the “**Start/Stop**” button twice to start cloning.

   NOTE: When multiple copies are required, all you need to do is change the TARGET drives, and press “**Start/Stop**” twice. Your last selections are used. If the unit senses that the MASTER drive was changed (by reading the serial number of the MASTER), it will again return you to the selection screen, where you specify the method of copy for each partition.

   NOTE: If you wish to change the last used settings (and the MASTER drive did not change), follow the “Selective Clone Step-by-Step” instructions above.

Mirror Clone Mode

This mode simply makes a bit-by-bit mirror copy of the Master drive. It does not adjust any values or perform any translation from drive to drive. It simply copies whatever percentage of the Master drive that is designated.

NOTE: Drives in a RAID array have dynamic or striped partitions and also need to be Mirror Cloned. When cloning a multiple drive RAID array, each drive in the array needs to be Mirror cloned to an identical Target drive.

You can change the percentage of Master disk you wish to mirror. For example, setting to 50% will mirror the first 50% of the Master drive’s size. The percentage of the Master drive to be mirrored is calculated starting from the first physical sector.

Mirror Clone Step-by-Step

1. From anywhere in the menu system press the "**Set**" button to enter the Settings menu.
2. Scroll to the top icon and press the "**Select**" button. The Modes screen appears.
3. Scroll to the "Mirror" item and press "**Select**" again[9].
4. Adjust the "Verify" and "CHS" settings as needed. (These settings are discussed later in this chapter).
5. A screen appears asking you what percentage of the Master drive to clone. Use the Up/Down scroll arrows to adjust this value in increments of 5%. If less than 100% is chosen for the **FRONT** of the drive, the unit will also ask for a percentage from the **REAR** of the drive.
6. When you are ready to start the cloning process, press the **"START/STOP"** button twice.

Master Manager Mode

Master Manager mode is useful in the creation of a multi-partition Master drive. Many IT technicians prefer to store multiple partitions (e.g. one for the accounting department, one for the marketing department, etc.) on a single Master drive. When a new PC is to be configured or a drive crash occurs, all the technician needs to do is select that partition and clone it.

The Master Manager mode is also useful for creating backups of drive partitions containing important data. The Logicube OmniSCSI can hold up to 24 partitions on one Master Manager drive. Drives up to 1TB in capacity have been successfully tested with the Master Manager mode.

Master Manager Step-by-Step

NOTE: To create a Master drive using Master Manager, you must start with an unformatted drive.

1. Attach the original Master drive (the drive you want to clone data from) to the Master position. Attach the Master Manager drive to the Target position.
2. From anywhere in the menu system press the **"Set"** button to enter the Settings menu.
3. Scroll to the top icon and press the "**Select**" button. The Modes screen appears.
4. Switch to the "**Tools**" tab. Scroll to the **"Master Manager"** item (the puzzle piece) and press "**Select**" again.

[9]You may need to switch from another tab screen to the **Clone** tab to access this option.

5. Press the "**Start/Stop**" button twice to start cloning. You will be warned that continuing will modify your **Destination** drive. If you are ready to do this, choose "Yes" to continue.
6. Both drives will now power up. After a few seconds the unit will display a list of all partitions found on the drive on the Master position..
7. Choose only one **Source** partition by placing the cursor by the desired partition. Press "**Select**" to toggle among the cloning methods exactly as you would in "Selective" mode.
8. Press **"Start/Stop"**. After a few seconds the Logicube OmniSCSI will display a list of all partitions on the Master Manager drive (if any) that are large enough to hold the data to be cloned from the Target drive.

NOTE: Existing Master drive partitions that are too small to hold the amount of data selected from the Target drive will not appear on the display.

9. Choose the Master partition you wish to overwrite, or scroll down and select the "Add New Partition" option.
10. When you are ready to start the cloning process, press the **"START/STOP"** button.
11. When the cloning process is complete, you can repeat steps 2 through 10 to clone any other partitions on the original Master drive.

Optional Preference Settings

In addition the different cloning modes, there are preference settings that can be used to adjust the behavior of the cloning operation. Each of these preference settings is accessible through the Settings menu, which can viewed at any time from anywhere in the menu system by pressing the Set button.

NOTE: Not all preference settings are available in every cloning mode.

Verify

The Verify preference allows you to choose whether the Logicube OmniSCSI scans the Target drives for bad or weak sectors. With Verify activated, the Logicube OmniSCSI scans target drives during the cloning process. If a bad or weak sector is detected, the cloning process is aborted.

NOTE: With newer drives this problem is virtually non-existent since the drives employ extensive on-the-fly bad sector detection and re-allocation.

Engaging the verification feature slows the speed of cloning by a factor of two or more. If a bad sector is detected on the Targets (with Verify turned on), the cloning process will abort with an error message.

IMPORTANT NOTE: This setting does not perform data verification.

To use Verify, scroll to the Verify icon in the Settings Menu, and press the "**Select**" button. Verify is available in Clever, Selective and Master Manager modes.

Verify Settings

- **None** (Default) - No target drive scan is performed.
- **100%** - Full verification. The OmniSCSI will verify that it can write to every sector it needs to write to.

  NOTE: Logicube strongly recommends against using a hard drive that has been shown to have bad sectors as new defects are likely to develop.

CHS Translation

CHS Mode sets the geometry (**C**ylinder, **H**ead and **S**ector) translation used on each Target drive. CHS information is stored in the partition table of the hard drive and is used by the BIOS to determine from which partition to boot.

The correct setting will depend upon the capacity of the Target drive and on the BIOS of the PC in which it will be used. Check with the hard drive and PC manufacturer to determine which CHS mode is best as different BIOS systems use different translation methods for large (over 528 MB) capacity drives.

To use CHS Translation, scroll to the CHS icon in the Settings Menu, and press the "**Select**" button to scroll through the options. CHS is available in Clever and Selective Clone modes.

CHS Translation Settings

Following are the CHS modes supported by the Logicube OmniSCSI:

LBA (Default) – This CHS Mode will work for most hard drive and PC combinations and should be used unless otherwise indicated.

Large – Also known as Extended CHS (ECHS) mode. It is used on all Compaq and Samsung computers, some IBM PC's, IBM Thinkpad laptops, some newer Dell laptops, and possibly other computers. It should also be used whenever a Phoenix BIOS version 4.0 or earlier is encountered.

LBA 8.5 and **Large 8.5** – These settings force all partitions to remain below the 8 GB mark. This is useful with Legacy motherboards that cannot support drives larger that 8.5 GB.

LBA-1, **LBA-2, Large-1** and **Large-2** – These settings instruct the Logicube OmniSCSI to "shave off" one or two cylinders from the total drive size when constructing the Target partition tables.

NOTE: Most of the time, blocking out one cylinder is enough but two may need to be blocked out to achieve good results.

4. OmniDiagnostics™

Introduction

The Logicube OmniSCSI has optional software packages that are not part of the standard unit[10]. Foremost of these is **OmniDiagnostics**, an optional feature that allows Target drives to be wiped clean of data.

Enabling OmniDiagnostics

All optional software packages are already inside your Logicube OmniSCSI (and are automatically updated when you install a newer software version). To use an option like Omnidiagnostics, it first needs to be enabled.

To enable OmniDiagnostics on your Logicube OmniSCSI, contact Logicube to purchase a license key that is unique to your unit. Once you have obtained the license key, follow this procedure to enter it into your Logicube OmniSCSI

1. Press and hold the Reset button. While holding it down, press and hold the “Start/Stop” button. Release the Reset button.
2. The OmniSCSI will display an “Entering Setup” message as it goes through the self test.
3. In the Setup Menu, Scroll to the “Enable Option” menu item and press the Select button.
4. Enter the OmniDiagnostics activation code you received from Logicube.
5. If all symbols have been entered correctly, the Logicube OmniSCSI will reboot to the main menu.
6. To verify that OmniDiagnostics has been activated, go to the About Screen. You will now see OmniDiagnostics listed as an installed option.

NOTE: Once the license key is entered, an optional software package is permanently enabled. The key will not need to be entered again, unless the Firmware or the BIOS are changed on the Logicube OmniSCSI itself.

NOTE: Loading new software updates will not disable the Omnidiagnostics option.

[10] As of this writing, the only optional feature available is Omnidiagnostics. Other features may become available in the future. Check www.logicube.com periodically to keep abreast of new information.

OmniDiagnostics Features

Erase Target Mode

The Erase Target mode erases all data on the Target drive. This may be required when discarding drives that contain sensitive information to which you do not want others to have access, e.g. financial information, trade secrets, etc.

Erase writes a pattern over the whole Target drive **2 X n+1** times, where n is the selected number of iterations of all 0's and all 1's. The last pass then writes the chosen pattern to every byte of the drive.

For example, if you set the number of passes (the value of n in the above formula) to 1, WipeClean will perform a total of three passes, first writing all 0's then again writing all 1's. Then one more pass will be made this time writing the chosen pattern.

Set the number of passes to 0 for a single pass of the chosen pattern. This method is acceptable for quickly wiping a drive where removal of sensitive information is not an issue.

Set the number of passes to 1 and the pattern to RANDOM if you wish to erase data according to Department of Defense (DoD) specification M-5220.

Erase Settings

The following settings are used in configuring WipeClean Target mode:

Passes – Determines how many iterations of all 0's and all 1's are performed. The default is 0. Set the value to 1 for compliance with DoD M-5220.

Value – Select the value to be written on the last pass. The options are 0xf6, 0x00, 0xff, and Random (DoD default). (The Random setting will fill the Target drive with a pseudo random pattern).

Erase Target Step-by-Step

1. Attach the drive(s) to be erased to the Target position(s). Attach a scratch drive to the Master position.

   NOTE: Do not use an actual Master drive in the Master position. A pattern will be written to the beginning of the drive which will corrupt any data residing on it.

2. From anywhere in the menu system press the "**Set**" button to enter the Settings menu.
3. Scroll to the top icon and press the "**Select**" button. The Modes screen appears.

4. Scroll to the “Erase” item (in the Diag menu), and hit “**Select**” again[11].
5. Adjust the “Passes” and “Value” settings as needed. (These settings are discussed in the previous section titled “Erase Settings”).
6. Press the Start/Stop button twice.
7. A message will appear stating that portions of your Target drive will be overwritten. If you are prepared to continue, choose “<Yes>”. If you wish to abort the operation, choose “<No>”.
8. If “<Yes>” is chosen, a second message will appear stating that you are about to erase the Target. If you wish to continue, choose “<Yes>”. If you want to abort the operation, choose “<No>”.
9. If “<Yes>” is chosen, the Erase Target operation will begin and a status screen will appear.
10. The Logicube OmniSCSI will notify you when erasing is complete. Press the Back button to return to the main menu.

[11]The OmniDiagnostics™ option needs to be installed for Erase™ to be available.

5. Software Loading Instructions

Logicube OmniSCSI Software Updating Procedures

New and improved software will appear from time to time on our web site at www.logicube.com.

Loading Software through the CompactFlash card

NOTE: Loading or updating software through the CompactFlash card requires the use of a CompactFlash card reader (or multi-card reader).

Download the current OmniSCSI One to One software from the Logicube web site to your PC. A copy of the software that shipped with your OmniSCSI can also be found on the CD that shipped with your unit.

Loading Software to the OmniSCSI One to One

1. Locate the OmniSCSI software named **Omnidup**.
2. Make sure the OmniSCSI is turned off and remove the CompactFlash card from the back of the unit.
3. Attach the CompactFlash card reader to a PC through a CompactFlash card reader.
4. Copy the **Omnidup** file from the PC to the root directory of the CompactFlash card. After the file has been copied, remove the CompactFlash card from the PC and insert it to the OmniSCSI.
5. Turn on the OmniSCSI. The new software should be loaded during the boot process. To verify the new software, use the arrow buttons to highlight **"About"** and press the **"Select"** button.

NOTE: Please contact Logicube Technical Support at (818) 700-8488 X3 if you have any trouble with the software update.

6. Frequently Asked Questions and Answers

Q. How does the OmniSCSI determine the size of partitions on the Target drive?

A. In the default CleverCopy mode, all known partitions (FAT16/FAT32/NTFS) are scaled proportionally to the ratio of Master/Target size. All unknown partitions (e.g. HPFS, UNIX etc.) are mirrored, that is they maintain their size. Please note that FAT16 partitions cannot exceed 2.1GB when scaled up, nor be smaller than 32MB when scaled down.

Q. Can the OmniSCSI clone to dissimilar drives?

A. Yes. The OmniSCSI will take care of all the necessary adjustments of Target drive structures to ensure the drive (of any size) will be valid and bootable.

Q. Can the OmniSCSI clone file systems such as UNIX, and HPFS?

A. Yes, but results are guaranteed only if cloned between identical drives and Mirror copy mode is used.

Q. Do Target drives have to be partitioned and formatted prior to copying?

A. No. Target drives need not be partitioned or otherwise treated. The OmniSCSI disregards everything on the Target drive, and re-formats and partitions the Target on-the-fly.

Q. My Target drive will not boot. Why?

A. Please check several things:

- Try changing the CHS setting (if Clever was used).
- Try Mirror mode and perform a bit-by-bit copy of the drive.

Q. How does the OmniSCSI handle bad sectors on the Master and Target?

A. Bad (or “weak”) sectors on the Master are handled in the following way:

- The OmniSCSI will abort the cloning process upon encountering the first bad sector. Note that the OmniSCSI will still make several attempts to read the bad sector in question, but unless a perfect read was achieved, the process will abort.

Bad sectors on Targets are handled as follows:

- If the Verify setting is disabled, the OmniSCSI will not detect bad sectors on the Target. Note, however, that newer drives use automatic reallocation and will rarely exhibit a bad sector, and thus reduce the probability of a problem to a negligible amount.

- With the Verify setting set, the OmniSCSI will abort the operation upon detecting the first bad sector.

Q. Can you briefly explain the difference between Mirror Copy and Clever Copy?

A. Mirror Copy merely copies all sectors in a given partition (or drive) from the beginning to the specified percentage. It does not look at drive structures, and can thus copy any type of known or unknown data. Since Mirror copy does not determine where useful data starts and stops, it ends up copying every sector on the drive, a time consuming operation.

Clever Copy analyzes the drive structures, and copies only sectors that are occupied by useful files and data. It also adjusts the various drive structures to assure a valid and fully partitioned Target drive. Clever Copy is by far the most recommended mode of cloning.

Q. Can I copy from a larger drive to a smaller drive?

A. Yes, especially with FAT formatted drives, as long as the data content of each partition fits into the scaled down size of its corresponding partition. Otherwise, an error message is displayed. NTFS partitions can be scaled down, but may not fit smaller drives depending on the type of data and location of data on the Master drive.

Q. Can I clone drives with virus protection software installed

A. Yes. But remember to decline the "repair" of the Target drive should a virus protection program complain about altered Master boot record etc.

Q. Why do I have an un-partitioned free space at the end of my Target drive?

A. This can happen if Mirror Clone is used to clone from a small drive to a larger Target drive.

Q: Why does my cloned Windows 2000 or Windows XP partition boot to a blue screen?

A: If Clever copy mode was used, try changing the CHS setting.

Q: Why do I get the error "Can't fit data to Target" when cloning between drives of the same size?

A: The drives may be from different manufacturers and the Target actually somewhat smaller than the Master. Also, the Master drive may have some data at the very end of the partition. This would prevent it from scaling down.

We recommend that you use a defragment utility on the Master drive before cloning it to the Target again.

Q: My cloning session stops with the error "Error initializing/writing NTFS data." Why?

A: This error means that NTFS Clever Clone has encountered corrupt data in the boot sector, MFT or Volume Bitmap of the Master drive. The drive may still boot in a PC, however.

Q: My cloning session always stops at a certain point with an "ERROR 120" or "ERROR 123" message. Why?

A: "ERROR 120" occurs when a bad sector is encountered on the Master drive. "ERROR 123" usually occurs when Verify is turned on and a bad sector is found on the Target drive.

Q: Why does the cloning session stop with an "Invalid MBR" error message?

A: This error comes up when the partition table or boot sector contains corrupt data. Despite the error, the Master drive may still boot in a PC.

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For further assistance please contact Logicube's technical support at: 818 700 8488 ext. 3, or by email to techsupport@logicube.com.